INTERNATIONAL MULTI DISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
eISSN 2394-6334 Impact factor: 8.854 Volume 13, issue 04 (2026)

CLINICAL ASPECTS OF POST-ENDODONTIC PAIN: PROGNOSIS, PREVENTION, AND TREATMENT

Giyazova Malika Mukhamadovna

PhD, Associate Professor, Department of Dentistry

Asia International University, Bukhara, Uzbekistan

Zhakhonov Zhavohir Uchkunovich

E-mail: giyazovamalika85@gmail.com

https://orcid.org/0000-0002-9688-3084

Abstract

Post-endodontic pain is one of the most common patient complaints after root canal treatment and represents an important clinical problem in modern dentistry. Despite the high effectiveness of endodontic treatment, the incidence of pain in the early postoperative period remains significant. The aim of this study is to analyze the causes of pain after endodontic treatment, risk factors, prognosis methods, and modern approaches to the prevention and treatment of this condition. This paper examines the main pathogenetic mechanisms, including microbial factors and mechanical and chemical irritation of periapical tissues. Particular attention is paid to the role of medical errors and individual patient characteristics. Based on a literature review, effective measures for the prevention and treatment of post-endodontic pain are proposed.

Keywords: endodontics, postoperative pain, flare-up, periapical inflammation, irrigation, root canal treatment.

Introduction

Endodontic treatment aims to eliminate infection from root canals and prevent further damage to periapical tissues. Despite significant advances in endodontics, including the introduction of modern instruments and irrigation protocols, the problem of post-endodontic pain remains relevant.

According to various studies, the incidence of pain after root canal treatment varies from 3% to 58%, depending on the clinical situation and the techniques used. Particularly pronounced symptoms are observed during the development of a so-called "flare-up"—an acute exacerbation of the inflammatory process after endodontic intervention. The relevance of this topic is driven by the need to improve the quality of treatment, reduce the incidence of complications, and improve patients' quality of life.

Study Objective

To study the causes, mechanisms of development, methods of prediction, prevention, and treatment of pain after endodontic dental treatment.

Study Objectives

Analyze the main causes of post-endodontic pain

Study the pathogenesis of pain syndrome

Identify risk factors and prediction methods

Review modern prevention methods

Evaluate treatment approaches

Materials and Methods

This study analyzed current Russian and international scientific publications on post-endodontic pain. Data from clinical studies, systematic reviews, and meta-analyses on endodontic treatment and its complications were used. The research methods included:

Analytical review of the literature

Comparative analysis of various treatment methods

Summarization of clinical data

Results and discussion

Causes of post-endodontic pain

The main cause of pain after endodontic treatment is an inflammatory reaction in the periapical tissues. Microbial factors play a key role—the penetration of infected material beyond the root canal.

Other causes include:

Extrusion of instruments, medications, or filling material beyond the root apex

Over-widening of the apical foramen

Insufficient root canal preparation

Mechanical tissue trauma

Errors in determining the working length

Pathogenesis of pain

Pain is based on an inflammatory reaction, accompanied by the release of inflammatory mediators (prostaglandins, cytokines). This leads to increased vascular permeability, tissue edema, and irritation of nerve endings. Of particular importance is increased pressure in the periapical region, which causes pain when biting.

Risk Factors

The main risk factors include:

Presence of pain before treatment

Necrotic pulp

Periapical changes

Repeat endodontic treatment

Poor root canal preparation technique

Individual patient characteristics, including pain threshold and immune status, also play a significant role.

Pain Prediction

Prediction is based on an assessment of the clinical situation before treatment. The most unfavorable prognosis is observed in the presence of severe inflammation.

The use of modern diagnostic methods, including radiographic examination, helps reduce the risk of complications. Prevention of Post-Endodontic Pain

Prevention includes a range of measures aimed at minimizing tissue trauma:

Accurate determination of working length

Use of a rubber dam

Adequate irrigation (sodium hypochlorite)

Delicate instrumentation

Preventing material from extending beyond the apex

Occlusion control

Compliance with aseptic and antiseptic principles is a key factor in successful treatment.

Treatment

Treatment of postendodontic pain

Treatment depends on the severity of symptoms:

Drug therapy:

Nonsteroidal anti-inflammatory drugs (ibuprofen)

Analgesics

In case of complications:

Ensuring drainage

Repeated canal treatment

Prescribing antibiotics (in the presence of systemic symptoms)

It is important to note that unnecessary antibiotic prescription is not recommended.

Conclusions

1. Postendodontic pain is a common complication of root canal treatment.

2. The main cause is an inflammatory reaction of the periapical tissues.

3. Microbial and iatrogenic factors play a key role.

4. Prognosis is possible based on the clinical picture before treatment.

5. Adherence to modern treatment protocols significantly reduces the risk of pain.

6. NSAIDs are the mainstay of treatment, with additional interventions available if necessary.

References:

1. Саноева М. Ж, Гиязова М. М., Некоторые этиопатогенетические аспекты и особенности поражения структур полости рта при коронавирусной инфекции. (обзор) //Journal of neurology and neurosurgery research Volume 2, ISSUE 4. – 2021. – С. 48-53

2. Гиязова Малика Мухаммадовна Способы ранней диагностики поражений органов и систем при коронавирусной инфекции в практике стоматолога // Journal Problems of biology and medicine 2023, №6 (150) С.86-93

3. Гиязова М. М., Саноева М.Ж. Влияние иммунобиологических структур организма на клиническое течение коронавирусной инфекции //Тиббиётда янги кун 7 (57) 2023. - С.231-237

4. Giyazova M.M. The impact of immunobiological components of the body on the clinical course of coronavirus infection //Bulletin of fundamental and clinic medicine // 2023, № 1/1 С.139-148

5. Гиязова Малика Мухаммадовна Манифестация патологии ротовой полости при инфицировании коронавирусной (COVID – 19) инфекцией // Материалы Республиканской научно практической конференции. «COVID – 19 и вопросы его реабилитации» 14-15 октябрь Бухоро, Ўзбекистон С.25-26

6. Гиязова М.М., Саноева М.Ж. Нейростоматологические особенности поражения структур полости рта при коронавирусной инфекции // Республиканская научно-практическая конференция (с международным участием) Нейродегенеративные и сосудистые заболевания нервной системы. 10 февраля 2022 года С.28-29

7. M.Giyazova, M.Sanoeva Violation of motor and non-motor in patientas with COVID-19 with oral pathology //World congress on Parkinson’s diseases and related disorders. A comprehensive educational program 2022, 01-04 May P.158-159

8. Sanoyeva Matluba Jaxonqulovna, Giyazova Malika Mukhamadovna COVID-19: The Defeat of the Oral Cavity in the Dentist's Practice // American Journal of Medicine and Medical Sciences 2024, 14(3): 726-733 DOI: 10.5923/j.ajmms.20241403.40

9. Giyazova M. M. Effectiveness in the Treatment of Changes in the Oral Mucosa of a Patient with Coronavirus //Middle European Scientific Bulletin Academic Journal. – 2022. – T.28. – P.55-59

10. Гиязова М. М., Саноева М. Ж. Нейростоматологические особенности поражения структур полости рта при коронавирусной инфекции //Conferences. – 2022. – С. 98-110.

11. Giyazova M. M. Modern Treatment of Diseases of the Oral Mucosa and Periodontal Under the Influence of Covid 19 //International Journal on Integrated Education. – 2021. – Т. 4. – №. 10. – P. 96-97.

12. Giyazova M. M. Specificity of the Course and Improvement of Treatment of Diseases of the Oral Mucosa and Periodontal Cavity under the Influence of Covid 19 // "On-line conferences" Platform. – 2021. – P.116-117.

13. Giyazova M. M., Sh O. S. Changes in the oral cavity in patients with COVID-19 diseases //Journal for Innovative Development in Pharmaceutical and Technical Science (JIDPTS). – 2021. – Т. 4. – №. 5. P. 79-81.

14. Muxamadovna G. M. Og'iz bo'shlig'i shilliq qavatining surunkali kasalliklarini erta tashxislash va davolashga zamonaviy yondashuv //Amaliy va tibbiyot fanlari ilmiy jurnali. – 2023. – Т.2. – №5. – С.332-340.

15. Giyazova M. M. Methods of Dental Examination of Patients with Covid 19 //Central Asian Journal of Medical and Natural Science. – 2022. – Т. 3. – №. 3. – P. 522-527.

16. Giyazova M. M. Specificity of the course and improvement of treatment of diseases of the oral mucosa and periodontal cavity under the influence of covid 19//International scientific and practical online conference //Actual Problems Pediatric Dentistry – 2021. – P. 336.

17. Giyazova, M. M. "Structure of Treatment of Diseases of The Oral Mucosa and Periodontal Under the Influence of Covid 19//Eurasian Scientific Herald" (2021): P.37-40.

18. Giyazova, M. M. Modern oral infection in patients with COVID 19 diseases //2nd International Conference on Science Technology and Educational Practices Hosted from Samsun, Turkey http://euroasiaconference. com May 15th-16 th. – 2021. – P. 266-267.

19. Giyazova M. M. The Importance of Using Lysozyme in the Treatment of Changes in the Oral Mucosa of a Patient with Coronavirus //Web of Scholars: Multidimensional Research Journal. – 2022. – Т. 1. – №. 5. – P. 114-119.

20. Giyazova Malika Mukhamadovna Oral mucosa, saliva and COVID-19 infection // Web of Scientist: International Scientific Research Journal. -2022. – Т. 1. - №. 6. – P. 1571-1578

21. Giyazova M.M. Modern Diagnostics of the Oral Mucosa in Patients With Covid-19 //Middle European Scientific Bulletin journal. -2022. -№25 – P.191-199.

22. Mukhamadovna G. M. A Modern Approach to the Early Diagnosis and Treatment of Chronic Diseases of the Oral Mucosa //American Journal of Pediatric Medicine and Health Sciences. – 2023. – Т. 1. – №. 3. – P. 119-126.

23. Mukhamadovna G. M. Features of Morphological Changes in the Mouth Mucosa in Coronavirus Infection //Scholastic: Journal of Natural and Medical Education. – 2023. – T.2 – №5 – P.450-455.

24. Mukhamadovna G. M. The Importance of Using Lysozyme in the Treatment of Changes in the Oral Mucosa of a Patient with Coronavirus //Amaliy va tibbiyot fanlari ilmiy jurnali. – 2022. – T.1. – №7 – P.214-219.

25. Гиязова М. М. Изменения слизистой полости рта при коронавирусной инфекции // Amaliy va tibbiyot fanlari ilmiy jurnali – 2022. – T.1. –№7 – C.301-304.

26. Giyazova Malika Mukhamadovna Etiopathogenetic aspects and features of damage to the structures of the oral cavity in coronavirus infection //Web of Scientist: International Scientefic Research Journal -2022.- T. 3. - №. 11. – P. 943-953

27. Modern oral infection in patients with covid -19 diseases //International Conference on Science, Technology and Educational Practices-Turkey.on may 15-16th.2021y.